MOLECULAR LIBRARIES HIGH THROUGHPUT SCREENING CENTERS: REQUEST FOR INFORMATION (RFI)

RELEASE DATE: November 21, 2003

NOTICE: NOT-MH-03-010

National Institutes of Health (NIH)
(http://www.nih.gov)

This RFI is for a roadmap initiative. All NIH Institutes and Centers participate in roadmap initiatives.

The National Institutes of Health (NIH) is planning to establish a network of Molecular Libraries Screening Centers as a national resource for biomedical research. The proposed network would provide capability for high throughput screening (HTS) of a public collection of chemically diverse small molecules (which will be assembled by NIH in a complementary effort) by a variety of assays to identify the potential of the molecules in the collection for use as biological probes and as starting points for the development of therapeutics. The chemical structures of compounds in the small molecule repository and the screening data generated by the centers will be made available in a public cheminformatics database (also being developed separately). NIH plans to issue a Request for Applications to establish a network of pilot screening centers in mid-January 2004, with a receipt date in mid-June 2004, and an anticipated award date in May 2005.

NIH is aware of the growing interest and involvement of the academic community in the development of compound libraries, as well as screening, chemical genomics, and drug discovery capacities. Through this Request for Information (RFI), NIH would like to obtain information that is relevant to establishing a pilot HTS center program, and to identify interested sources that are already developing existing screening capabilities or that could develop the infrastructure support and capabilities for HTS screening, to facilitate the Molecular Libraries Roadmap program (http://nihroadmap.nih.gov/molecularlibraries/index.asp) and aid in the planning of this new initiative.

This RFI is for information and planning purposes only and should not be construed as a solicitation or as an obligation on the part of the Government. The Government does not intend to award a cooperative agreement on the basis of responses to this RFI nor otherwise pay for the preparation of any information submitted or for the Government's use of such information.

Background

The NIH wishes to facilitate the use of HTS to identify small molecules that have the potential for use as chemical probes to study cellular pathways and the functions of major components of the cell in health and disease by rapidly and efficiently screening a large number of compounds that encompasses a broad range of novel targets and activities. The intent of the program is to benefit basic biological research and preclinical research by increasing the variety of available bioactive compounds, and to increase the number of molecules available as potential drug candidates for further development by the public or private sector. Data from HTS assays will be made available to investigators through a publicly accessible cheminformatics database.

The Molecular Libraries Screening Center program is designed to empower multi-disciplinary academic teams to discover small molecules that can be used in basic biological and biomedical studies, and to translate basic research findings into novel therapeutics in disease areas that may not be attractive to the private sector. The sharing of small molecules, assays, and screening data with the larger scientific community represents a new public sector paradigm that promises to facilitate the understanding of basic biological mechanisms and shorten the timeline for drug development, with resulting benefits to public health, especially for rare disorders.

The NIH is planning to use a cooperative agreement mechanism to establish 8-10 pilot screening centers in FY 2005 with the capabilities to: 1) adapt target-based and cell-based phenotypic assays solicited from investigators in the public or private sector to HTS format; 2) screen small molecule libraries for biological activity in these assays; c) provide medicinal/optimization chemistry to transform screening hits into useful biological probes; and d) support informatics capability to track compounds and assays. During the initial 3-year phase, the pilot centers will be expected to increase their capabilities and throughput to achieve a minimum goal of screening 100,000 small molecules in each of 20 assays per year. The pilot program will lay the groundwork for a subsequent solicitation for a smaller number of fully operational, larger scale HTS centers.

Information Requested

Information in the following areas will aid the NIH in the design of the announcement for pilot HTS centers. We ask that interested organizations identify critical criteria that should be included in the announcement and to describe their interests as well as their current and potential capabilities to meet these criteria. Information presented need not be limited to these areas. Please limit your responses to 10 pages or less.

1. Modification of Assays for HTS

a. Describe your capabilities, or means of acquiring the capabilities, to modify experimental in vitro assays to produce assay protocols suitable for HTS. Assays that you have developed may be listed, as well as the technical capabilities of personnel and the capacity available in your organization.

b. Describe the criteria by which you would judge the usefulness of an assay for identification of research tools or candidates for drug development, and how you think that a center should prioritize and coordinate the screening of multiple assays.

c. Describe your LIMS (laboratory information management system) and your capabilities for data analysis, including structure-activity analysis.

2. Equipment/Techniques

a. Describe your current facilities and equipment, or plans to acquire the appropriate infrastructure support, and discuss the range of techniques and technologies available in your organization.

3. Capacity

a. Describe the level of throughput obtainable with your current level of staff and equipment including number of viable assays and estimated number of molecules that could be screened per year.

b. Describe the highest level of throughput likely to be obtainable by your organization and discuss the timeline, staff, and equipment additions you believe would be necessary to reach this level.

4. Personnel

a. Describe the personnel who would be required to modify, screen, and analyze one assay. Include an estimate for the level of effort of each.

Responses

Responses should be identified with RFI No., and are due by December 17, 2003. Please submit three (3) copies of your response, to Linda Brady, PhD, NIH contact for the Molecular Libraries Screening Centers Initiative, National Institute of Mental Health, NIH, 6001 Executive Boulevard, Room 7185, Bethesda, MD 20892-9641 (For FedEx or

courier, use: Rockville, MD 20852). Email responses will also be accepted at lbrady@mail.nih.gov

For further information on this or other NIH Roadmap Molecular Libraries initiatives, please contact the NIH implementation group members listed at http://nihroadmap.nih.gov/molecularlibraries/members.asp

Acknowledgment of receipt of responses will not be made, nor will respondents be notified of the Government's assessment of the information received. However, should such an announcement materialize, no basis for claims against the Government shall arise as a result of a response to this request for information or the Government's use of such information as either part of our evaluation process or in developing specifications for any subsequent announcement. Responses will be held in a confidential manner. Any proprietary information should be so marked.

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